Manual

Radio module for Sekonic light meter

Prototype

Preliminary design

Project: PI-1101
Author: Dipl.-Ing. (FH) Jörg Pickel
Last change: 10/24/2012

Inhaltsverzeichnis

Introduction....3
Safety instructions and important informations....3
Intended use....3
Delivery....4
Preparation & Installation....4
Startup & operation....6
Group function....6
Power regulation and modelling light....7
Standalone mode....8
Troubleshooting....9
Technical specifications....10
Version history....11
Updateservice....11
Compatibility list....12

Introduction

The module kit is designed for wireless triggering of studio flashes units or radio receivers with handheld light meters from Sekonic. To our knowledge, the following types are suitable:[1]:

- Sekonic L-358
- Sekonic L-558
- Sekonic L-608
- Sekonic L-758

The module is designed depending on the type of one of the following radio systems:

- Elinchrom Skyport
- Profoto Air Sync / Air Remote
- Hensel Strobe Wizard
- Yongnuo CTR-301

Safety instructions and important informations

This kit is a prototype. It has taken great care to the selection of components and design specified that to our knowledge is conform to current regulations. The prototype is designed exclusively for test and evaluation purposes. An agreement with the declaration of conformity and other current regulations cannot be guaranteed. Any liability and warranty claims or claims arising from an application beyond a test operation will be strictly excluded hereby. For damages and defects of the kit and / or light meters, and resulting damage will be excluded. We accept no liability, either during installation and removal, operating and the usage of the module.
Errors in this manual and the product cannot be excluded. All informations without guarantee. Brand names and trademarks are property of their respective owners. A current version of these instruction can be found at http://www.pi-labs.de/documents/RT32_Manual_en.pdf.

Intended use

The radio module is designed for operation in Sekonic light meters, prepared for RT32 modules. Usage only in the intended way, as stated in the Sekonic user manual. Improper use can be hazardous for people.

1 See tested types in the section „Compatibility list“. Please give us a short information, wich Type you are using (the first four letters of your serial, e.g. JH30), even if you can use the module without or with any problems.

Delivery

- RT32 module
- Pin header, solder tin, a piece of self-adhesive foam
- Optional: adapter cable to read the error memory
- User guide

Preparation & Installation

Avoid static discharge when remove the protective packaging. Therefore you can touch a metal housing of a grounded device. Touch the module only by its edges and avoid direct contact with components and pads.

The kit is partially assembled. All hard to assemble devices are soldered already, which simplifies the construction. Solder the pin header as described in the following pictures. Make sure that there are no short-circuits and the joint is correct. The female pin header should be perpendicular to the board and straight. The self-adhesive foam can be fixed on the bare side of the board, to increase the stability when built inside the Sekonic.

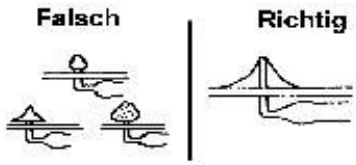

Abbildung 1: Lötverbindungen

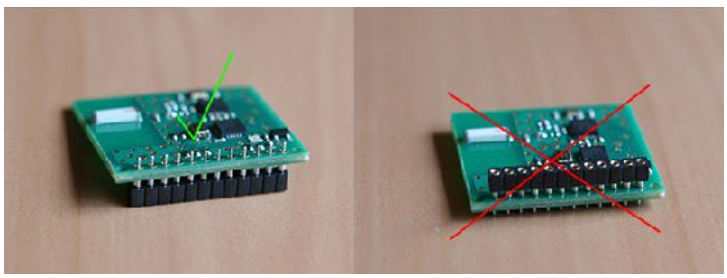

Abbildung 2: Buchsenleiste richtig herum löten

Turn your meter off and plug the module onto the intended header inside the light meter. Do not press the components, because they are very sensitive. It's best to push the module without any violence on the two holes next to the pin header (e.g. using two pens in the holes). Make sure that the module is inserted straight (and also not shifted). The dismounting of the module is relatively easy, if you use two bend wires (e.g. a paper clip) into the holes. Now you can pull the module gently up (see Figure 3 and 4).

Figure 3: A bended paper clip for easy dismounting.

Figure 4: Inerstion and dismounting

Startup & operation

The operation of the module is done mainly with the light meter. The information can be found in your owner's manual from Sekonic.

When you start your light meter, the module should automatically be recognized and the flash icon with a small antenna is displayed (see Figure). If the icon doesn't appear or disappears, please follow the instructions in the chapter „Troubleshooting“.

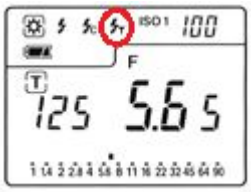

Figure 1: Antenna symbol

Select the remote triggering mode by holding down the „MODE“ button and turn the dial wheel until both the antenna symbol is framed and you can see the ISO, T and F in the display. If you only see „ch“, this is the channel selection mode but not the remote triggering mode.

The following section is specific to the Elinchrom Skyport System: Since the Sekonic can address 32 channels, but Skyport supports only 8 channels, the upper channels are used for Skyport specific functions. The channels 9 to 16 are used for the speed function. For example: Select channel 10 on the Sekonic and set the Skyport to channel 2 in Speed-Mode. The channels 17 to 32 enables the group setting.
For ease of presentation, you will also find a table with all channel settings in the following section.

Group function

The channels 17 to 32 enables the group function. Here you can select or deselect the Groups A, B, C and D individually. The Skyport system is here a little bit limited and will allow only one active group at the same time. When you activated more than one group simultaneously only the last group has the priority.

Specific to Hensel Strobe Wizard: This system uses only one channel. Therefore the channel setting doesn’t have any effect. Group settings are accessible on channels 17 to 32.

Example: The Sekonic is set to channel 19 (this is the third channel with group function), so you have to select channel 3 on your Skyport (but no Speed-Mode). If you activated groups C and D, the group D has the priority and the receiver has to be on Group 4.

The channels 25 to 32 activates the Speed-Mode in the same way as the channels 9 to 16.

For a better understanding, here the settings both for the transmitter and the receiver:

Channel to be set on Sekonic	*Channel on the receiver*
Channel 1 – 8	Channel 1 - 8 (normal mode, all groups)
Channel 9 – 16	Channel 1 - 8 (speed mode, all groups)
Channel 17 – 24	Channel 1 - 8 (normal mode, with groups)
Channel 25 – 32	Channel 1 - 8 (speed mode, with groups)

When you use the Sekonic channels 17 to 32, the group settings is relevant:

Groups to be set on Sekonic	*Groups to be set on the receiver*
A - - -	1
- B - -	2
- - C -	3
- - - D	4

Power regulation and modeling light

These functions are not supported by the Sekonic itself. Therefore two additional buttons are required on the solder points TP2 and TP3 to the ground point GND (see Figure). A short press on the button increases or decreases the flash power. A longer key press (greater than one second) turns the modeling light on and off.

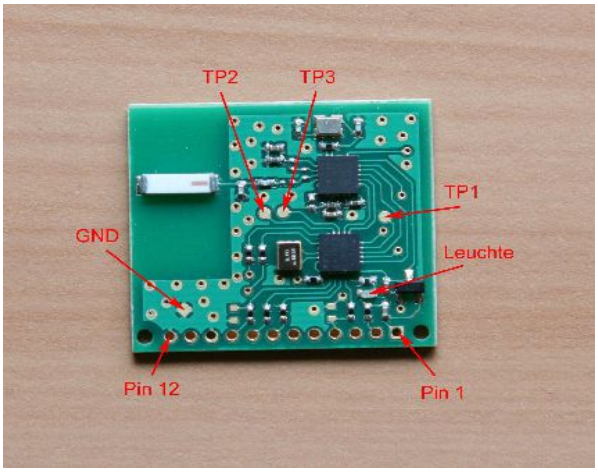

Figure 5: Module and solder points

Standalone mode

The module has two stand-alone modes, supporting a separate radio receiver and transmitter. The module in receive mode can be connected to flashes and cameras. Here it can be triggered wirelessly with a Sekonic RT32 module or another module in transmitter standalone-mode. In the transmitter mode, the module can control other modules in receive standalone-mode or original Elinchrom Skyport receivers.

The module is supplied by a 3V voltage (pin 1 = 3V, pin 12 = ground). To select the standalone-mode, connect pin 5 to ground. The pin 6 determines whether you want to send (leave floating) or to receive (connect to ground).

By default, channel 1, no groups and no speed mode is selected. This advanced functions can be configured via a serial interface. More informations can be found in the programming guide included in the optional USB interface.

Troubleshooting

The antenna icon will not show up!

Apparently, your light meter does not recognize the radio module and assumes that it isn't installed. In this case, the module logs an error code. Either read the error memory yourself, or send us the module after contacting us. Usually, we extend the firmware version of the module and you can get it back afterwards. If you do so, you support the project and improve the compatibility of the module with different Sekonics.

The antenna icon will be displayed shortly, but it disappears.

This is the same problem as stated prior. Please proceed identical.

I can select the radio trigger mode, but the flashes do not release!

Open the battery lid, so you can see the module. There is a small light on it, which should light up each time you press the measurement button. In this case, the radio signal is transmitted. It could either be a false channel ore the incorrect speed mode / group mode setting. Be sure to check your receiver. Possibly a interference could be the problem. Change the distance and position to the receiver. Finally, a weak battery could cause the problems, both in the receiver as in the meter.

How can I read the error memory myself?

Remove the module from your meter and connect the positive terminal of the battery directly to the pins 1, the negative to pin 8 and pin 12. After a few seconds light signals are emitted with different lengths. A long signal (about 2 seconds) means „0“. A short signal (about 0.2 seconds) you have to count the numbers. There are up to four short signals in a row. Please write down the number „1“ to „4“ you quoted. Among other signals are always about 2 seconds pause. If you disconnect the battery, wait a few seconds and reconnect it again. Please validate the numbers you wrote down. You can give us this information by email. It looks like this:

„0 – 2 – 1 – 1 – 4 – 0 – 0 – 3 – 1 – 2 – 3 – 0“.

In addition to this, we need the firmware revision (on the bare side of the module) and the first four digits of your Sekonic serial number.

Technical specifications

Transmit frequency	2,456 GHz to 2,475 GHz
Transmission power	max. 0 dBm (corresponds 1mW)
Range	not reported [2] (depending on the Sekonic type / environment)
Power supply	typ. 3V DC
Current consumption (Skyport)	about 1,4mA in idle mode about 0,9mA standby (Powermanagement only) max. 15mA in transmission (for <1ms)
Dimensions (WxLxH)	ca. 29mm x 26mm x 6mm
Weight	ca. 4g
Temperature range	storage, -20°C bis +70°C operation, -10°C bis +50°C
humidity	storage, 0% bis 80% relative, non-condensing operation, 0% bis 70% relative, non-condensing

2 In field tests, we got a reduced range by up to 20% compared to the Elinchrom Skyport Eco (depending on the orientation of the meter). This depends on the meter housing attenuation, interference and shielding by hand. At extreme temperatures, the range is further reduced.

Version history

Firmware 1.0

- First functional firmware for Elinchrom Skyport
- Skyport: Eight selectable frequency channels

Firmware 1.1

- Expansion for Sekonic L-608
- Skyport: Speed-Mode
- Skyport: Group function
- Skyport: Remote control of modeling light and power regulation

Firmware 1.2

- Bugfix for Sekonic L-758 (bug since Firmware 1.1)
- Expansion for Sekonic L-758D (Japanese model; JH30)
- Stand-Alone functions (transmitter and receiver without Sekonic)

Firmware 1.3 (without power management)

- programmable parameters for Stand-Alone functions
- Expansion for Sekonic L-758DR (US model; JH12)

Firmware 1.4

- Skyport: Bugfix for power regulation / modeling light (bug since firmware 1.3)
- First functional firmware for Profoto Airsync and Hensel Strobe Wizard
- Airsync: Eight selectable frequency channels
- Strobe Wizard: Three selectable groups (plus „all groups“)
- Strobe Wizard: Remote control of modeling light and power regulation
- Support of composite modules

Update service

We offer an updating service for the firmware. This service is free, except transport costs. Please contact us before you send us the securely packed module. We will program the latest firmware and send the module back to you. Please understand that you have to pay at least for any transport costs. We take no responsibility for damage or

loss during transport.

Compatibility list

Type	Serial	FW 1.0	FW 1.1	FW 1.2	ab FW 1.3
L-358	JC11	+	+	+	+
L-358	JC12	**?**	**?**	**?**	+
L-358	JC1A	+	+	+	+
L-358	JC1G	+	+	+	+
L-558	JD11	**?**	**?**	**?**	+
L-608	JB11	-	+	+	+
L-758D	JH30	-	-	+	+
L-758D	JH31	-	-	+	+
L-758D	JH3G	+	-	+	+
L-758DR	JH11	+	-	+	+
L-758DR	JH12	-	-	-	+
L-758DR	JH1G	+	-	+	+
L-758Cine	JH21	+	-	+	+

The „FW“ stands for the firmware revision. You will find this number on the bare side of your module.

„+“ = Successfully tested combination

„**?**“ = Untested combination

„**-**“ = Tested combination, but doesn’t work

Combination using a blue symbol, are not tested, but shows the estimated function. This information is based on a test with this Sekonic type and another module revision, with a similar code base.